

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

By the foregoing amendment, claims 1-5 and 15 have been amended and new claims 17-19 have been added. Thus, claims 1-19 are currently pending in the application and subject to examination. No new matter has been added.

Informal Matters

In the Office Action mailed November 28, 2006, Fig. 9 and claims 2 and 3 were objected to for informalities. Fig. 9 and claims 2 and 3 have been amended responsive to the objections. If any additional amendment is necessary to overcome the objections, the Examiner is requested to contact the Applicant's undersigned representative.

Rejections Under 35 U.S.C. § 103

In the outstanding Office Action, claims 1-8 and 14-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,573,936 to Morris et al. (hereinafter, "Morris"), in view of U.S. Patent No. 6,282,145 to Tran et al. (hereinafter, "Tran"). Claims 9-13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Morris in view of Tran and further in view of U.S. Patent No. 6,556,475 to Yamazaki et al. (hereinafter, "Yamazaki"). It is noted that claims 1-5 and 15 have been amended. To the extent that the rejections remain applicable to the claims currently pending, the Applicant hereby traverses the rejections, as follows.

In the Applicant's invention as recited in independent claim 1, as amended, a solid state image pickup device includes a semiconductor substrate defining a two-

dimensional surface; a number of photoelectric conversion elements disposed in a light receiving area of the semiconductor substrate in a matrix shape and in a first number of rows and a second number of columns; analog digital converters, each formed for each column of the photoelectric conversion elements in an area of the semiconductor substrate other than the light receiving area, the analog digital converters converting analog image data from the photoelectric conversion elements into digital image data; and a non-volatile memory formed in an area of the semiconductor substrate other than the light receiving area at a succeeding stage of the analog digital converters, the non-volatile memory having memory units, each corresponding to one of the photoelectric conversion elements, and recording the digital image data.

Thus, in the solid state image pickup device as recited in amended claim 1, the signal processors are analog-digital converters, and the non-volatile memory has memory units in correspondence to the pixels in the light receiving area for storing digitalized pixel data. Furthermore, pixels of a horizontal line, e.g. 1000 pixels, are read simultaneously, and digitalized image data of one horizontal line is stored in a non-volatile memory. The selected line may be scanned line by line to complete one image. The processing is done in the same chip in parallel, and therefore, there is no need to supply the data outside the chip at a high speed.

In Morris, image data is processed block by block, for blocks consisting of $n \times m$ pixels. The memory array 130 of Morris is a work memory (DRAM), which performs spatial rotation of 8×8 image data in a block-column by switching a matrix and performing pixel operations, such as object correction and interpolation. See Morris, col. 7, lines 20-30. The operational results are supplied outside the chip before the next

block is supplied, and are recorded in an off-chip memory 180. The structure taught by Morris requires a high speed read/write work memory. Moreover, in Morris, the clock speed for reading image data cannot be freely altered; therefore, it is difficult to reduce power dissipation in the device of Morris. Morris does not disclose or suggest a number of photoelectric conversion elements disposed in a light receiving area of a semiconductor substrate in a matrix shape and in a first number of rows and a second number of columns; analog digital converters, each formed for each column of the photoelectric conversion elements in an area of the semiconductor substrate other than the light receiving area, the analog digital converters converting analog image data from the photoelectric conversion elements into digital image data; and a non-volatile memory formed in an area of the semiconductor substrate other than the light receiving area at a succeeding stage of the analog digital converters, the non-volatile memory having memory units, each corresponding to one of the photoelectric conversion elements, and recording the digital image data, as recited in claim 1, as amended.

Tran discloses a non-volatile memory for multi-level recording, which may be used in a memory medium outside a sensor. Trans is neither cited for, nor does Tran correct the deficiencies of Morris noted above.

To qualify as prior art under 35 U.S.C. §102, a single reference must teach, i.e., identically describe, each feature of a rejected claim. Moreover, to establish *prima facie* obviousness of a rejected claim, the applied art of record must teach or suggest each feature of a rejected claim. See *M.P.E.P. §2143.03* and *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). As explained above, none of the applied art of record, either alone or in combination, teaches or suggests each and

every feature recited in independent claim 1, as amended. Therefore, independent claim 1 is neither anticipated nor rendered obvious by the combination of Morris and Tran. Accordingly, the Applicant respectfully submits that independent claim 1, as amended, is patentably distinct over Morris and Tran and in condition for allowance.

As amended claim 1 is allowable, the Applicant submits that claims 2-16, which depend from allowable claim 1, are likewise allowable for at least the reasons set forth above with respect to claim 1.

New Claims 17-19

Each of new claims 17-19 depends from claim 1. As such, the Applicant submits that each of new claims 17-19 is allowable for at least the reasons set forth above with respect to claim 1.

Conclusion

For all of the above reasons, it is respectfully submitted that the claims now pending patentability distinguish the present invention from the cited references. Accordingly, reconsideration and withdrawal of the outstanding rejections and an issuance of a Notice of Allowance are earnestly solicited.

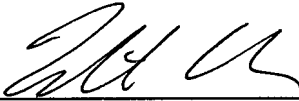
Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is invited to contact the undersigned representative at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of time. The Commissioner is hereby authorized to

charge any fee deficiency or credit any overpayment associated with this
communication to Deposit Account No. 01-2300 referencing client matter number
107317-00060.

Respectfully submitted,

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WLC/MLC:

Enclosures: Petition for Extension of Time
Replacement Sheet

AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to Figure 9. This sheet, which includes Fig. 9, replaces the original sheet including Fig. 9. In Figure 9, the legend "Prior Art" has been added.